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A further constraint, as we understand the IMPs, is that allocations of water to irrigated acreage are limited, at least as a total over a period of years. Based on this constraint and the limitations on longer term average pumping described above, a sequence of irrigation depths was developed that attempts to follow the pattern of actual irrigation depths over the period from 1995 to 2006 but produces a sequence that is within the aforementioned constraints on irrigation depth and average pumping volume for each NRD. The result of that process is shown on Table A for each year and for each of the three NRDs.

Hydrologic conditions such as precipitation and evapotranspiration for the years 1995 to 2009 were used to represent future hydrologic conditions. This 15-year period was repeated four times to yield a 60-year future period of analysis. This 15-year period was selected for several reasons. First, the period contained both wet and dry climatic conditions. Second, the average precipitation within Nebraska for this period was very close to the average precipitation over the past 50 years. Third, the irrigation conditions in terms of measures such as acreage and applied water during this period are likely more representative of current practices. Fourth, the selected conditions produce trends in GWCBCU that are comparable to trends observed in model runs made by Nebraska to estimate potential future increases in GWCBCU.

Several different geographic areas were initially tested to determine the impact of pumping reductions that were limited to these areas. The areas included the so-called 10-2 and 10-5 areas described in various Nebraska documents and nominal 5-mile and 7-mile stream corridors determined from stream cell locations in the Republican River Compact Administration (RRCA) Groundwater Model. These initial tests indicated that the nominal 5-mile corridor would encompass an area where pumping reductions could produce sufficient reductions in Nebraska's GWCBCU for purposes of this analysis. The extent of the nominal 5-mile stream corridor in which pumping was reduced is shown on Figure 1.

Using the conditions outlined above, the RRCA Groundwater Model was used to calculate potential future impacts to Nebraska's GWCBCU and IWS resulting from reduced levels of pumping within the NRDs. The results of those calculations are summarized in the tables below.

Table 1 below shows the estimated future GWCBCU and IWS for Nebraska for each of the years 2010 to 2069 (60 years) for the baseline pumping condition. As described previously, the baseline pumping condition was set so that the average pumping volume over each 15-year future cycle for each of the three NRDs was equivalent to the average pumping limitation described in the IMPs. This average pumping limitation was eighty percent of the historical pumping amounts for 1998 through 2002 listed in the IMPs.

Table A: Irrigation depths used for each NRD for each 15-year future cycle.

Equivalent Cycle Year	Upper Republican	Middle Republican	Lower Republican
1995	11.3	13.7	10.9
1996	8.2	7.7	5.3
1997	12.5	12.4	9.1
1998	13.1	12.7	7.6
1999	9.9	5.9	6.1
2000	16.7	15.7	9.7
2001	10.6	11.8	8.9
2002	14.5	15.8	13.3
2003	12.0	12.3	9.7
2004	10.2	10.6	8.0
2005	8.7	8.5	7.3
2006	9.0	7.6	5.5
2007	10.3	8.3	6.5
2008	11.2	8.9	5.5
2009	8.7	8.4	6.2